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In April of this year I collected a fresh specimen, and germinated spores from it side by side with spores from the specimens then a year old. I found that, as before, about one-tenth of the spores from the fresh specimen germinated, while one-third to one-half of the year-old spores germinated. The swarm-cells from the latter seemed to possess more vitality also, remaining alive in distilled water longer than the swarm-cells from the fresh spores. Very few of the latter were found active at the end of twenty-four hours. There was little difference in the time required for the germination of the two. The temperature was always that at which the air of the laboratory happened to be, no attempt ever having been made to keep the spores at any given temperature.

The diameter of the spores is about  $8\mu$ , of the amoeboid cells about  $7\mu$ , and of the swarm-cells about  $6\mu$ . Only uniciliate swarm-cells were observed.

I have also germinated year-old spores of *Diachaea leucopoda* Bull., *Hemiarcyria rubiformis* Pers., and *Fuligo septica* (Fries) Link., and spores of *Badhamia hyalina* Pers. two months old. Only a small percentage of any of these germinated, but the time required was less than three hours for any of them. Only amoeboid cells of *Hemiarcyria rubiformis* were observed. In all cases about one-half hour was consumed by the protoplasm in escaping from the epispore, and the time given above as the time required for germination is that between the moment they were placed in water and the moment the protoplasm assumed the swarm-cell form.

It will be seen that my experience agrees more closely with that of De Bary<sup>1</sup> than that of Durand. The time required for the germination of some of the spores is shorter, however, than that of which I find any record. I am indebted to A. P. Morgan for the determination of the specimens mentioned in this article.—ALFRED JAMES MCCLATCHIE, *Biological Department, Throop Polytechnic Institute, Pasadena, Calif.*

*Sphaeroplea annulina* (Roth.) Ag. in Minnesota.—This interesting alga has been previously reported from California by Dr. W. G. Farlow, upon the basis of collections by Mrs. Austin near San Bernardino<sup>2</sup> and so far as known to me this is the only authentic report of its occurrence in the United States. Wolle,<sup>3</sup> whether from a doubt concerning the identification or failure to note the definite terms of Dr. Farlow's announcement, states that "it is reported from Califor-

<sup>1</sup>De Bary, *Comp. Morph. and Biol. of Fungi*, etc. (Eng. trans.) 421 and 448. 1887.

<sup>2</sup>Farlow, W. G., Notes on fresh-water algæ. *Bot. Gaz.* 8: 224. 1883.

<sup>3</sup>Wolle, *freshwater algæ of the United States*. 104. 1887.

nia but without certain knowledge as to locality." This hesitant inclusion is apparently the basis of the doubtful attributing of *Sphaeroplea* to America by Wille<sup>3</sup> in his monograph upon the family, but the true state of the matter is shown clearly enough by Magnus<sup>4</sup> in a brief note upon the distribution of the plant, published in *La Notarisia*. There need be no further question, however, about the presence of this plant in the United States, since it was collected in quantity by Mr. D. T. MacDougal and myself, in inundated meadows near Bass lake, Hennepin county, Minn., April 23, 1894. The filaments were intermingled with those of *Zygnema* and *Spirogyra* and were found to include all stages of development. The formation of sperms, eggs and syngametes was noted and apparently at least two of the varieties recognized by De Toni<sup>5</sup> were present in the material studied. A further contribution may be looked for from the Minnesota laboratories upon this plant.—CONWAY MACMILLAN.

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<sup>3</sup>Wille, N., *Sphaeropleaceæ* in Engler and Prantl. Nat. Pflanzenfam. Theil I. Abth. 2. June, 1890.

<sup>4</sup>Magnus, Paul, Nuova contribuzione alla conoscenza dell' area geografica della *Sphaeroplea annulina* Roth. *La Notarisia* 6: 1215. 30 Ap 1891.

<sup>5</sup>De Toni, Sylloge Algarum. 1: 95. 25 Jy 1889.

19—Vol. XIX—No. 6.